

## Abstract:

### Aim:

Periodontitis is an immuno inflammatory disease of supporting tissues of the teeth, caused by specific microorganisms resulting in the progressive destruction of periodontal ligament, alveolar bone with pocket formation. The aim of the study is to evaluate the regenerative potential of simvastatin loaded on collagen membrane compared with collagen membrane alone in intrabony defects both clinically and radio graphically during 6, 12 months post-operative period.

### Materials and methods:

The study population comprised of 10 patients and a total of 20 intrabony defects were divided into two group. GROUP1 were treated with simvastatin loaded collagen membrane, GROUP 2- collagen membrane alone. Plaque index (PI), Ginigval index (GI), oral hygiene index – simplified(OHI –S), probing pocket depth (PPD), clinical attachment level (CAL) were measured at baseline, 6 monthsand 12 months.

### Results:

The mean plaque index score at baseline was  $1.99 \pm 0.260$ ,  $1.00 \pm 0.211$  and  $0.63 \pm 0.226$  at 6 and 12 months post-operative period. The mean oral hygiene index –simplified score at baseline was  $1.59 \pm 0.074$ ,  $0.69 \pm 0.074$  and  $0.044 \pm 0.052$  at 6 and 12 months post – operative period. The mean gingival index score at baseline was  $2.14 \pm 0.386$ ,  $1.37 \pm 0.46$  and  $1.32 \pm 0.238$  at 6 12 months post-operative period. In group1, at baseline the mean probing pocket depth was  $7.30 \pm 0.483$ ,  $3.60 \pm 0.516$  and  $3.25 \pm 0.483$  at at 6 and 12 months post-operative period. In group 2, at baseline it was  $7.40 \pm 0.516$ ,  $4.6 \pm 0.516$  and  $4.4 \pm 0.516$  at 6 and 12 months post –operative period. In group 1, at baseline the mean clinical attachment level was  $7.4 \pm 0.527$ ,  $3.70 \pm 0.483$  and  $3.71 \pm 0.432$  at 6 and 12 months postoperative period. In group 2, at baseline it was  $7.50 \pm 0.527$ ,  $4.50 \pm 0.527$  and  $4.4 \pm 0.517$  at 6 and 12 months. In group 1, at baseline the mean defect was  $7.34 \pm 0.793$  and the bone fill measured was  $6.15 \pm 0.622$  at 6 months and  $5.74 \pm 0.381$  at 12 months post – operative period. In group2, at baseline it was  $7.13 \pm 0.868$ , and the measured bone fill was  $6.09 \pm 0.568$  at 6 months and  $5.67 \pm 0.381$  at 12 months.

#### Conclusion:

Both Simvastatin and collagen membrane yielded favorable clinical results in periodontal intrabony defects. Probing pocket depth and gain in attachment level were significant in both the groups when compared to pre-operative level. But probing pocket depth and clinical attachment level gain was greater in simvastatin with a statistically significant p- value of  $<0.001$  than the collagen membrane alone at 6 and 12 months post operatively. Both the groups exhibited significant amount of bone fill than the pre-operative levels and the mean bone fill was higher in simvastatin treated group. But there is no statistical significance in between the two groups at 6 and 12months post-operative period.

#### Keywords:

Simvastatin loaded collagen membrane, intrabony defects.